ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

MEMORANDUM

DATE: July 30, 1984

TO: Miles A. Zamco, Manager, FOS, DAPC

FROM: Frederick L. Smith

SUBJECT: Acme Barrel Company: Drum Reclamation System
031 600 ASD

Almega Corporation was contracted to perform stack tests on the Drum Reclamation System operated by Acme Barrel Company. Testing was done on June 18, 1984. The stack serving the waste heat boiler was the test location. The pollutants sampled include particulate matter, carbon monoxide, total hydro-carbons and heavy metals. The sampling procedures used include Method 5 for particulates, Method 10 for carbon monoxide, Method 25 for organics and atomic absorption for the heavy metals. The sampling was done in a manner suitable to the Agency.

Discussion of Results

A Comparison of Results of particulate matter emissions from the drum reclamation system is attached. The Agency has not determined exactly what allowable rule Acme Barrel must meet, as I have mentioned in some previous memos. The decision has yet to be made as to whether the system is a process or an incinerator. This question has no bearing on the Acme test, as I will discuss below, however, this decision must be made in order to regulate the other drum reclaimers located in Illinois.

The emissions of particulate calculate to be 3.85 pounds per hour. The amount of sludge and waste material estimated to be burned from the drums is 2000 pounds per hour. I repeat that the process weight rate is an estimate. Therefore, if Acme's system is considered to be a process, the allowable is 4.1 pounds per hour as stated in rule 212.322b (203b). This emission rate is within the allowable.

The emission rate also calculates to be an average of 0.078 grains per standard cubic foot corrected to 12% CO_2. Using 2000 pounds per hour as the PWR and if the system is deemed to be an incinerator, the allowable emission is 0.08 as stated in rule 212.181b (203 e 2). The actual emissions are within this limit also.

Hydrocarbon emissions average 11.08 lb/hr, expressed as carbon. CO emissions average 65 ppm corrected to 50% excess air. The only heavy metal with any amount of emissions is lead, which averages 0.2391 pounds per hour.

A copy of all results and comparisons is attached.

FLS:gec

cc: Mel Villalobos/Kerry Keller/Harish Narayen/Harish Desai/P. Orlinsky

Attachments

Acme Barrel Company 7/23/84

Stack Test Results: Drum Reclamation System

Comparison of Results

031 600 ASD

	Almega	IEPA	Almega	IEPA	Almega	IEPA
Test No	1	1	2	2	3	3
Date	6/18/84	6/18/84	6/18/84	6/18/84	6/18/84	6/18/84
V_{mstd}	44.902	45.07	34.901	35.05	33.508	33.62
M_s	28.27	28.28	28.17	28.17	28.33	28.33
V_s	41.24	41.24	42.30	42.31	40.80	40.79
Q_s	39353	39353	40364	40374	38933	38923
Q_{Sstd}	21151	21226	21897	21980	21687	21789
C_s	0.0192	0.0192	0.0284	0.0282	0.0147	0.0147
PMRa		3.59		5.48		2.74
PMRc	3.49	3.49	5.33	5.31	2.74	2.75
PMRs		3.54		5.40		2.74
%I	103.2	102.93	103.3	103.13	100.1	99.78
	Process					
PMRc	3.49	3.49	5.33	5.31	2.74	2.75
PWR	2000 lb/hr					
Allowable	4.1 lb/hr: Rule 212.322b (203b)					
	Incineration					
C_s	0.0192	0.0192	0.0284	0.0282	0.0147	0.0147
CO_2	3.0		3.4		3.1	
C_{s12}	0.0768	0.0768	0.1002	0.0995	0.0569	0.0569
Allowable	0.08 gr/scf corr. to 12% CO_2: Rule 212.181b (203e2)					

The Almega Corporation

TABLE; 1

PLANT: Acme Barrel Company

LOCATION: Drum Oxidiser Outlet

OPERATOR: M.R. Jackson and R.H. Holtz

TEST DATA: June 18, 1984

REPETITION #:		1	2	3
TIME:		8:34A-10:15A	10:29A-11:44A	12:21P-1:45P
STACK GAS				
Temperature, av. ^{o}F		422	402	394
Velocity av. fps		41.2	42.3	40.8
Volume flow x 10^{6}	scfh db	1.269	1.314	1.301
	acfm	39353	40364	38933
Orsat, average %	CO_2	3.0	3.4	3.1
	O_2	16.2	15.7	16.1
Moisture %		7.74	8.96	7.29
Excess Air %		316	278	308
PARTICULATE SAMPLE				
Time, mins.		96	72	72
Volume scf db		44.902	34.901	33.508
Particulates collected, mg		56.0	64.2	32.0
Isokinetic Ratio %		103.2	103.3	100.1
PARTICULATE				
Concentration grains/dscf		0.0192	0.0284	0.0147
x 10^{-6} lbs/scf db		2.750	4.056	2.106
Emissions lbs/hr		3.49	5.33	2.74
HYDROCARBONS AS CARBON				
Concentration x 10^{-6} lbs/scf db		13.08	7.23	5.44
Emissions lbs/hr		16.60	9.55	7.08
CARBON MONOXIDE				
Concentrations as measured ppm		19	24	30
Concentrations at 50% excess air ppm		53	60	82

The Almega Corporation

TABLE: 1

PLANT: Acme Barrel Company

LOCATION: Drum Oxidiser Outlet

OPERATOR: M.R. Jackson and R.H. Holtz

TEST DATA: June 18, 1984

Emission Rate, % of total particulate

Repetition #:	1	2	3
Arsenic	<0.002	<0.002	<0.003
Beryllium	<0.005	<0.005	<0.010
Cadmium	0.13	0.74	0.21
Lead	7.25	6.67	3.97
Mercury	<0.0004	<0.0003	<0.0006